

Biology: Unknown. From the apparent close relationship of *Embidobia* Ashmead to *Palaeogryon*, I assume the latter to be a parasite of Embiid eggs.

ACKNOWLEDGMENTS

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REFERENCES

- Duby, G.** 1957. On the amber trail in Chiapas. *Pacific Discovery* 10(2):8-14.
- Hurd, P. D. and R. F. Smith.** 1957. The meaning of Mexico's amber. *Pacific Discovery* 10(2):6-7.
- and **R. L. Usinger.** 1958. Cretaceous and Tertiary Insects in Arctic and Mexican amber. *Proc. 10th Internat. Congr. Ent.* 1:851.
- Masner, L.** 1964. A comparison of some Nearctic and Palearctic genera of Proctotrupoidea (Hymenoptera) with revisional notes. *Acta Soc. Ent. Čechosl.* 61:123-155.
- Snyder, T. E.** 1960. Fossil termites from Tertiary amber of Chiapas, Mexico (Isoptera). *Journ. Paleont.* 34(3):493-494.
- Sturtevant, A. H.** 1963. A fossil Perisclid (Diptera) from the amber of Chiapas, Mexico. *J. Paleont.* 37(1):121-122.
- Wille, A.** 1959. A new fossil stingless bee (Meliponini) from the amber of Chiapas, Mexico. *J. Paleont.* 33(5):849-852.

NEW CHARACTERS FOR GENERIC SEPARATION IN THE SYNOPEAS-LEPTACIS COMPLEX¹ (HYMENOPTERA: PLATYGASTERIDAE)

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ABSTRACT—Modifications of the pronotal margin and the anterior gastral segments are employed in the generic separation of *Leptacis* Foerster and *Synopeas* Foerster, and the status of other genera which at various times have been regarded as their synonyms is discussed.

Foerster (1856) described several genera of Platygasteridae which were characterized by extensions of the posterior surface of the scutellum. Of these genera *Leptacis*, *Isorhombus* and *Piestopleura* possessed long scutellar spines, while in *Synopeas*, *Sactogaster* and

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Ectadius the projection was short and the scutellum somewhat laterally compressed. *Leptacis* and *Isorhombus*² were separated mainly by the shape of the head and the position of the ocelli, whereas the latter three genera were differentiated from each other by modifications of the female gaster, as was another short-spined genus, *Dolichotrypes* Crawford and Bradley 1911.

The major workers in this group have differed widely in their treatment of these genera; Fouts (1924), working mainly with Nearctic material and relying partially on Ashmead's generic determinations, regarded *Synopeas*, *Ectadius*, *Dolichotrypes* and *Anopedias* Foerster as synonyms of *Leptacis*, but retained *Sactogaster* as a valid genus. He suggested that *Piostopleura* may also prove to be a synonym of *Leptacis*. In contrast, Kieffer (1926) recognized all of the above genera as valid.

The problem has been largely resolved by Masner (1960) who has treated *Synopeas* as a valid genus, distinguishable from *Leptacis* by the following characters:

Synopeas
Abdomen sessile or sub-sessile; petiole transverse, it and the base of tergite 2 covered with dense, silvery hairs.
Forewings with extremely short fringes.

Leptacis
Abdomen petiolate; petiole elongate with only sparse hairs laterally.
Forewings with long fringes.

Nevertheless, as Masner indicates, although these two sets of characters are representative respectively of the majority of species of *Synopeas* and *Leptacis*, there still remain numerous exceptions which cannot be assigned with certainty on this basis. However, the additional characters described below confirm Masner's opinion of the validity of these two genera and should permit the correct generic placement of the more difficult species.

In the Platygasteridae the gaster is typically composed of six separate, visible segments in the female and seven in the male. In a few genera the number of segments is reduced (at least, in the female); e.g. four or five in *Metanopedias* Brues, five in *Gastrotrypes* Brues, three in *Isostasius* Foerster, reduction in these cases being caused by loss or fusion of the small terminal segments. In both sexes of *Synopeas* the first gastral segment (petiole) is fused with the second segment (fig. 1). The condition is usually obscured by the dense white hair at the anterior of the gaster and is seen most clearly by transmitted light with the specimen immersed in liquid. This fusion occurs in *Synopeas*, *Ectadius* and *Sactogaster sensu* Foerster and in *Dolicho-*

² *Isorhombus* is now regarded as a synonym of *Platygaster* Latreille as *I. hyalipennis* Ashmead, the first included species, has been transferred to *Platygaster* (vide Fouts, 1924, p. 51; Muesebeck and Walkley, 1956, p. 362; Masner and Muesebeck, 1968, p. 90).

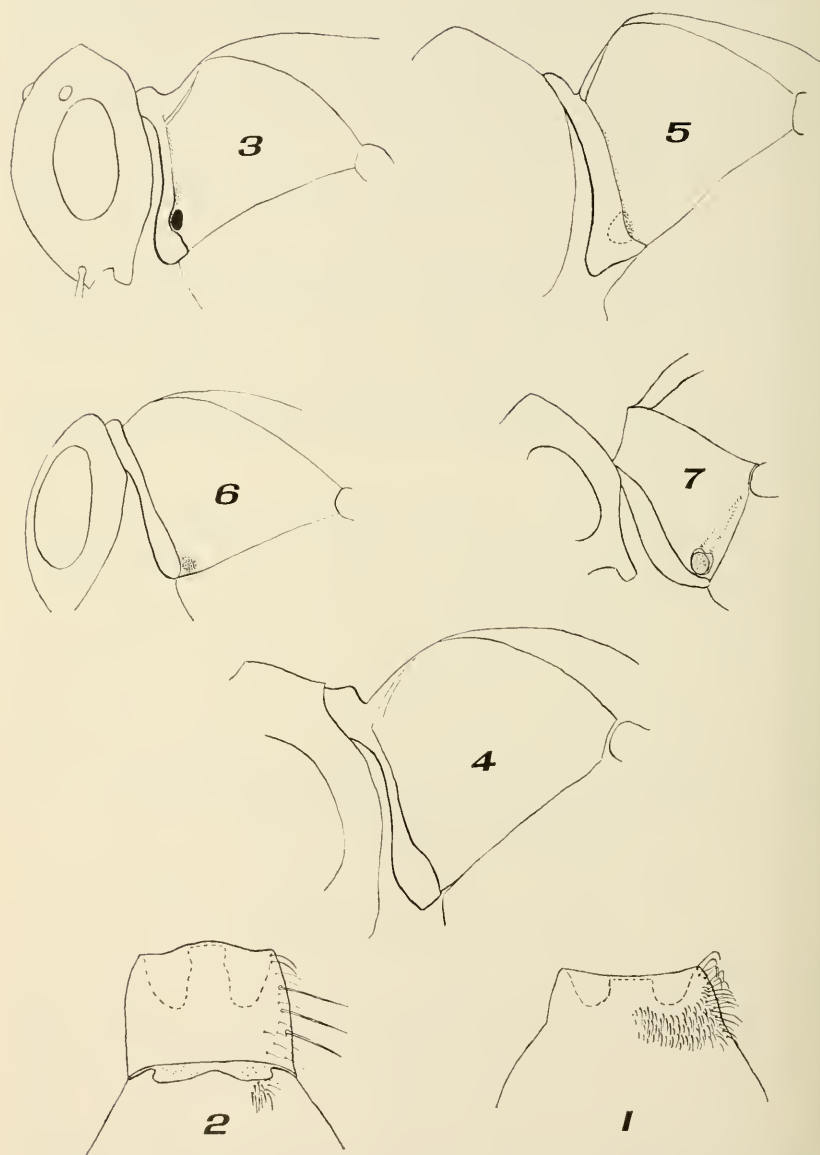


Fig. 1. *Synopeas* Foerster, fused 1st and 2nd gastral segments, dorsal aspect. Fig. 2. *Leptacis* Foerster, separate 1st and 2nd gastral segments, dorsal aspect. Figs. 3-7, modifications of pronotal margins: 3, *Synopeas*; 4, *Leptacis*; 5, *Amblyaspis* Foerster; 6, *Piestopleura* Foerster; 7, *Iphitrachelus* Walker.

trypes. In all other genera of the family, including *Leptacis* (fig. 2), the first and second segments are separated by a distinct suture, and appear to be capable of limited articulation.

The anterior margin of the pronotum of platygasterids is thickened and is expanded towards its ventral extremity (figs. 3-7). In *Synopeas* there is always a deep, oval depression immediately behind the thickened margin and dorsal to the expanded area (fig. 3). In most cases the depression actually perforates the sclerite; less frequently a thin, transparent membrane persists, without affecting its general form. In the entire specimen the structure is best seen looking from the tegula towards the fore coxa.

In addition to *Synopeas sensu* Foerster, this structure also occurs in *Dolichotrypes* and in species that Foerster would have assigned to *Ectadius* and *Sactogaster*. No such depression is present in *Leptacis*, where the area behind the anterior margin of the pronotum is quite smooth (fig. 4). However, to avoid any possible confusion between *Synopeas* and other genera it should be pointed out that in *Amblyaspis* Foerster, *Piastopleura* and *Iphitrachelus* Walker forms of postmarginal depressions occur, all of which differ from each other and from the type found in *Synopeas*.

In *Amblyaspis* the depression is a blind pocket formed by the overgrowth of the expanded area of the pronotal margin and occurs in the extreme ventral corner of the sclerite (fig. 5); the cavity is therefore parallel to the main surface of the sclerite, whereas in *Synopeas* the depression occurs dorsal to the expanded area, and is more or less vertical to the surface of the sclerite, which it penetrates. *Amblyaspis* is readily separated from other genera by the fine adpressed hair on the scutellum, the shallow suture between mesonotum and scutellum, and the close proximity of the two terminal antenna segments in the female.

In at least some species of *Piastopleura* there is a shallow simple depression in the ventral corner of the pronotum, posterior to the expanded area (fig. 6). Contrary to Fouts suggestion (op. cit.) *Piastopleura* is a valid genus characterized by the extreme lateral compression of the thorax, the antero-posteriorly compressed head and the flat ventral surface of the gaster. *Piastopleura* possess a free, elongate, bare petiole, and in general structure is more closely related to *Leptacis* than to *Synopeas*.

The pronotal depression in *Iphitrachelus* (fig. 7) is deep and cylindrical; it is situated in the extreme ventral corner of the sclerite and continues as a groove towards the tegula. In most features *Iphitrachelus* differs markedly from all other Platygasteridae and it seems probable that these modifications of the pronotum have de-

veloped independently in each of the four genera described, and are not indicative of close relationship.

Anopedias, also cited by Fouts (op. cit.) as a synonym of *Leptacis*, is a valid genus, not closely related to *Leptacis* or *Synopeas* (vide Masner, 1960, p. 3). *Anopedias* may be recognized by the flat dorsal surface of the thorax; when seen from the side the mesonotum, scutellum, propodeal lamellae and the dorsal surface of the gaster form an almost straight line. Fouts opinion was probably based on species placed by Ashmead in *Anopedias*, but which have since been transferred to *Synopeas* (vide Masner and Muesebeck, 1968, pp. 100-101).

Several of the opinions concerning generic status expressed in this paper had their origin in conversations with Dr. Lubomir Masner and the author gratefully acknowledges his contributions.

REFERENCES

- Foerster, A.** 1856. Hymenopterologische Studien, 2. 152 pp. Aachen.
- Fouts, R. M.** 1924. Revision of the North American Wasps of the Subfamily Platygasteridae. Proc. U.S. Nat. Mus. 63(15a):1-145.
- Kieffer, J. J.** 1926. Scelionidae. Das Tierreich 48:1-885.
- Masner, L.** 1960. A revision of the African species of the genus *Leptacis* Foerst. (Hymenoptera-Platygasteridae). Rev. Zool. Bot. Afr. 62(1-2):1-34.
- and **C. F. W. Muesebeck.** 1968. The Types of Proctotrupoidea (Hymenoptera) in the United States National Museum. Bull. U.S. Nat. Mus. 270:1-143.
- Muesebeck, C. F. W. and L. M. Walkley.** 1956. Type species of the genera and subgenera of parasitic wasps comprising the superfamily Proctotrupoidea (order Hymenoptera). Proc. U.S. Nat. Mus. 270:1-143.

A SUMMARY OF SPECIES OF MICROCTONUS NORTH OF MEXICO WITH FIVE NEW SPECIES

(HYMENOPTERA: BRACONIDAE: EUPHORINAE)

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ABSTRACT—Five new species of *Microctonus* Wesmael are described of which four are associated with the host species of adult Coleoptera: **psyllioidis** (*Psylliodes punctulata* Melsh.); **cucumeridis** (*Epitrix cucumeris* (Harris)); **longitarsi** (*Longitarsus melanurus* Melsh.); **alticae** (*Altica bimarginata* Say); and **barri**. The 24 known species of *Microctonus* occurring in America, north of Mexico, are keyed.

The Nearctic species of *Microctonus* Wesmael north of Mexico were reviewed by Muesebeck (1936). They comprised eight species, and from 1936 to 1969 ten others were described (Mason, 1960, 1968;